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THE

**Municipality of George Town,  
PENANG,**

**STRAITS SETTLEMENTS.**

---

**HEALTH OFFICER'S**

**ANNUAL REPORT**

**FOR THE YEAR 1934.**

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**PRICE 50 CENTS PER COPY.**

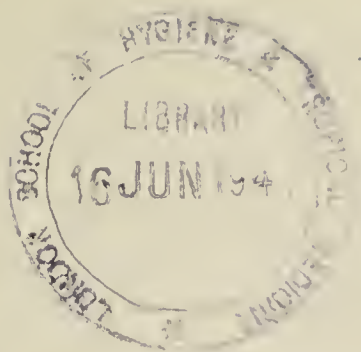
**OBTAINABLE FROM THE MUNICIPAL SECRETARY.**

1935

THE CRITERION PRESS CO., LTD., PENANG.







## STATISTICAL SUMMARY.

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Situation	...	...	...	...	...	Lat. 5° 24' N., Long. 100° 20' E.
Average Elevation above L.W.M.O.S.T.	...	...	...	...	...	Town area 12 feet 6 inches. Suburban area 25 feet 0 inch.
O. S. Tides rise and fall	...	...	...	...	...	9 feet 0 inch.
Rainfall 1934 (average of three readings within Municipal limits)	...	...	...	...	...	133.48 inches
Average annual rainfall for preceding 54 years (up to 1934) at the Prison	...	...	...	...	...	108.67 inches.
Rainfall for 1934 at the Prison	...	...	...	...	...	144.25 inches.
Mean Temperature 1934	...	...	...	...	...	81.5° F.
Mean Maximum Temperature 1934	...	...	...	...	...	89.2° F.
Mean Minimum Temperature 1934	...	...	...	...	...	73.9° F.
Total area of Penang Island	...	...	...	...	...	108 square miles.
Area within Municipal limits	...	...	...	...	...	9.4 sq. miles or 5,845 acres
Estimated population (mid-year)	...	...	...	...	...	159,085.
Density of population	...	...	...	...	...	27.22 per acre.
Crude death rate	...	...	...	...	...	24.73 per mille.
Infant mortality	...	...	...	...	...	156
Birth rate	...	...	...	...	...	31.28 per mille.
Sterling equivalent	...	...	...	...	...	2s. 4d.

# STAFF OF THE HEALTH DEPARTMENT ON 31ST DECEMBER, 1934.

W. H. Brodie ...	...	M. B., Ch. B., D. P. H.,			
		Health Officer,			
		Registrar of Births and Deaths,			
		Deputy Superintendent of Vaccination,			
		Registrar of Midwives,			
		Medical Superintendent of Infectious Diseases Hospital,			
		Medical Superintendent of Chinese Small-pox Hospital.			
E. W. Graham,...	...	M. B., Ch. B.,			
		Deputy Health Officer,			
		Deputy Registrar of Births and Deaths,			
		Deputy Superintendent of Vaccination.			
T. P. Khoo ...	...	M. B., B. S. (Hong Kong).			
		Deputy Registrar of Deaths.			
J. E. Miller ....	...	M.S.I.A., Cert. R.S.I.,			
		Chief Sanitary Inspector, joined the service 14th September, 1933.			
R. J. Rangel ...	...	Sanitary Inspector	do.	1st October,	1913.
Qw Leong Chye ...	...	do.	do	1st July,	1921.
E. V. Lessler ...	...	do.	do	1st July,	1921.
M. D'Souza ...	...	Sanitary Sub-Inspector,	do.	1st April,	1919.
John Loh ...	...	do.	do.	17th May,	1921.
Yeap Hin Tat ...	...	do.	do.	14th August,	1922.
Lim Khay Seng ...	...	do.	do.	1st March,	1923.
Lo Siew Tean ...	...	do.	do.	1st July,	1923.
Teoh Cheng Hoe ...	...	do.	do.	1st December,	1923.
M. S. d'Orville...	...	do.	do.	18th February,	1924.
Oh Cheng Guan ...	...	do.	do.	18th May,	1926.
Tiew Ah Foo ...	...	do.	do.	20th May,	1926.
Lim Teik Ghee...	...	do.	do.	16th January,	1930.
Rejab bin Othman ...	...	do.	do.	6th February,	1930.

Low Cheng Cheow	...	Sanitary Sub-Inspector	joined the service	21st August,	1930.
Oh Cheng Ian	...	do.	do.	1st November,	1930.
C. B. de Souza	...	do.	do.	12th June,	1933.
M. B. Pestana	...	do.	do.	1st July,	1934.
Hamad bin Senawi	...	Milk Inspector,	do.	2nd July,	1906.
E. D. Joseph	...	Chief Clerk,	do.	6th October,	1920.
Ooi Leong Teik...	...	2nd Clerk,	do.	1st January,	1921.
Lim Chin Aun	...	3rd Clerk,	do.	17th October,	1928.
Goh Swee Hock	...	4th Clerk,	do.	1st September,	1934.
N. Rethinam	...	Dresser,	do.	15th January,	1934.
Fusoff bin Abdul Gaffour	...	Assistant Dresser,	do.	25th August,	1930.
Miss H. Flint	...	S.R.N., C.M.B., A.R. San. I.,			
		Health Sister,	do.	1st May,	1928.
Miss F. M. Sloan	...	S.R.N., C.M.B.,			
		Health Sister,	do.	13th November,	1931.

Eight qualified midwives as part-time midwives.



MUNICIPAL HEALTH OFFICE,

Penang, 30th July, 1935.

To

THE MUNICIPAL COMMISSIONERS.

GENTLEMEN,

I have the honour to submit the following report on the health of the Municipality during 1934.

I. POPULATION.

The estimated mid-year population was 159,085. This figure is arrived at by the Registrar General's method of estimation which is commonly adopted.

The estimated distribution of the population at the middle of 1934 among the various races was as follows:—

TABLE I.

Race	Males	Females	Total	Per cent. of Total
European ...	824	472	1,296	1
Eurasian ...	831	975	1,806	1
Chinese ...	65,190	43,884	109,074	69
Malay ...	10,418	10,599	21,017	13
Indian ...	18,948	5,403	24,351	15
Others ...	910	631	1,541	1
Total	97,121	61,964	159,085	100

2. BIRTHS.

There were 4,977 births registered of whom 2,543 were males and 2,434 females, the birth rate being 31.28 per thousand. The figures for 1933 were, births 5,052 and birth rate 32.38.

Reckoned on the estimated female population alone the birth rate was 80.32 per thousand compared with 83.14 per thousand in 1933.

The number of births and birth rates for the various races were as follows:—

TABLE II.

Race	Number of births			Birth rate per thousand.	
	Males	Females	Total	Total population	Female population
European ...	19	20	39	30.09	82.60
Eurasian ...	18	21	39	21.59	40.00
Chinese ...	1,873	1,783	3,656	33.52	83.31
Malay ...	254	254	508	24.12	47.93
Indian ...	367	342	709	29.12	131.23
Others ...	12	14	26	16.87	41.20

A comparison with the births registered during the previous ten years is shown here:—

TABLE III.

Year	European	Eurasian	Chinese	Malay	Indian	Others	Total
1924	53	54	2,903	660	544	43	4,257
1925	46	52	3,135	562	497	26	4,318
1926	51	55	3,193	585	514	36	4,434
1927	61	75	3,714	638	631	33	5,151
1928	58	52	3,928	595	661	38	5,332
1929	45	48	3,970	663	656	28	5,410
1930	61	56	4,084	674	730	25	5,630
1931	49	58	3,899	596	677	36	5,315
1932	50	63	3,739	568	679	30	5,129
1933	32	52	3,655	587	709	17	5,052
Average for ten years	51	56	3,622	613	630	31	5,003
1934	39	39	3,656	508	709	26	4,977

## 3. DEATHS.

The gross total of deaths within Municipal limits during the year was 3,935 and crude death rate 24.73; of this number 443 were not normally resident in Penang and had been less than three months within Municipal limits. Omitting these we have 3,492 deaths and a corrected death rate of 21.95 per thousand.

The following table shows the distribution of the deaths in age groups and races.

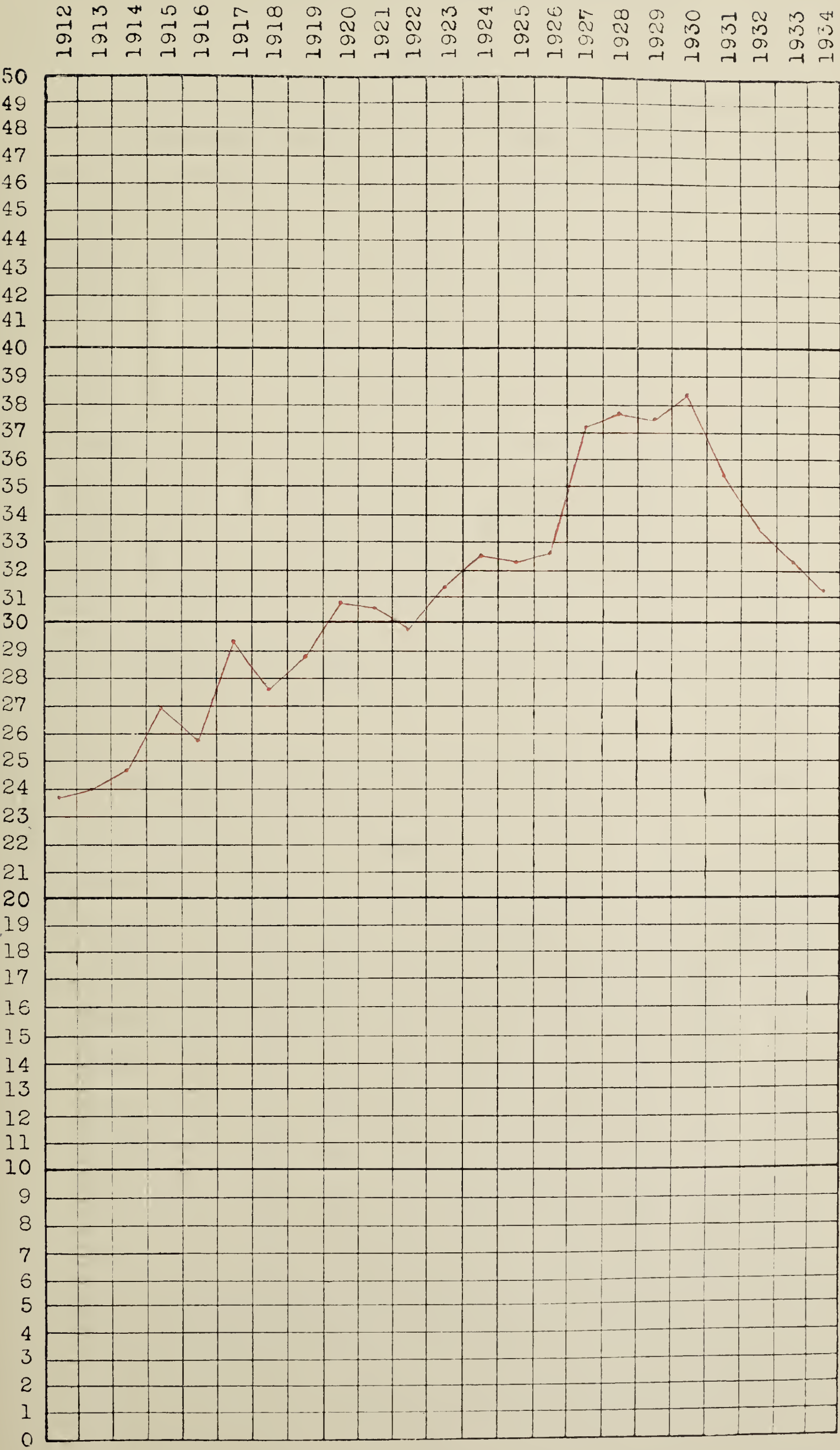
TABLE IV.


Race.	Sex.	Ages													Total	Grand Total
		Under 1 month	2-3 mths	4-12 mths	1-5 years	6-15 years	16-25 years	26-35 years	36-45 years	46-55 years	56-65 years	66-75 years	Over 75 years	Unknown		
European ...	M	—	—	—	—	—	—	—	—	1	1	—	—	—	2	2
	F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Eurasian ...	M	1	—	2	—	—	3	—	—	1	1	1	—	—	9	26
	F	—	1	—	3	2	2	1	3	1	1	2	1	—	17	
Chinese ...	M	97	95	122	134	38	79	127	190	214	185	110	22	1	1414	2385
	F	69	85	109	135	35	68	112	113	59	77	71	38	—	971	
Malay ...	M	10	23	17	26	5	39	42	41	25	21	15	9	—	273	564
	F	11	16	23	30	8	34	37	30	28	29	22	23	—	291	
Indian ...	M	22	6	19	22	3	26	48	52	37	33	10	8	1	287	485
	F	20	9	17	36	6	24	28	16	12	9	11	10	—	198	
Others ...	M	2	—	—	—	—	2	2	1	—	3	3	1	—	14	30
	F	—	1	—	1	1	1	2	3	2	—	3	2	—	16	
Total ...	M	132	124	160	182	46	149	219	284	278	244	139	40	2	1999	3492
	F	100	112	149	205	52	129	180	165	102	119	109	74	—	1493	
Grand Total		232	236	309	387	98	278	399	449	380	360	248	114	2	3492	



# PENANG MUNICIPALITY

## BIRTH RATES





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Compared with 1933, the Chinese deaths have increased by 183, the Malay deaths by 79 and the Indian deaths by 55.

The total deaths of each race in the last ten years are shown here.

TABLE V.

Year	European	Eurasian	Chinese	Malay	Indian	Others
1925	5	28	2,165	468	538	36
1926	9	34	2,436	497	568	26
1927	11	29	2,664	550	758	33
1928	11	24	2,544	434	623	32
1929	7	27	2,388	465	560	33
1930	14	23	2,245	409	549	19
1931	10	26	2,244	451	489	21
1932	6	28	2,186	474	490	16
1933	6	27	2,202	485	430	22
1934	2	26	2,385	564	485	30

A comparison of the births and deaths of the different races may be of interest:—

TABLE VI.

Race		Births	Birth rate per thousand	Deaths	Death rate per thousand
European	...	39	30.09	2	1.54
Eurasian	...	39	21.59	26	14.40
Chinese	...	3,656	33.52	2,385	21.86
Malay	...	508	24.12	564	26.83
Indian	...	709	29.12	485	19.92
Others	...	26	16.87	30	19.47

There were 201 still-births reported during the year.

## 4. INFANT MORTALITY.

Table VII shows according to race the infant mortality, that is, deaths of children under one year of age per 1,000 births occurring during the same period, and a comparison with 1933.

TABLE VII.

Race		Births	Deaths under one year	Infant deaths per thousand births	
				1934	1933
European	...	39	—	—	—
Eurasian	...	39	4	102	19
Chinese	...	3,656	577	158	147
Malay	...	508	100	197	186
Indian	...	709	93	131	121
Others	...	26	3	115	176
Total	...	4,977	777	156	146

The chief causes of infant deaths and the mortality compared with that in previous years from the same causes are given in Table VIII.

TABLE VIII.

Chief causes of infant deaths.	Infant deaths per thousand births									
	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Intestinal diseases ...	19	21	17	17	18	23	17	20	18	20
Respiratory diseases ...	27	19	32	32	31	26	28	27	27	42
Prematurity and Debility ...	23	29	29	29	25	21	19	19	20	27
Convulsions	47	60	62	62	57	50	45	44	48	34

These causes accounted for 614 of the 777 infant deaths which occurred.

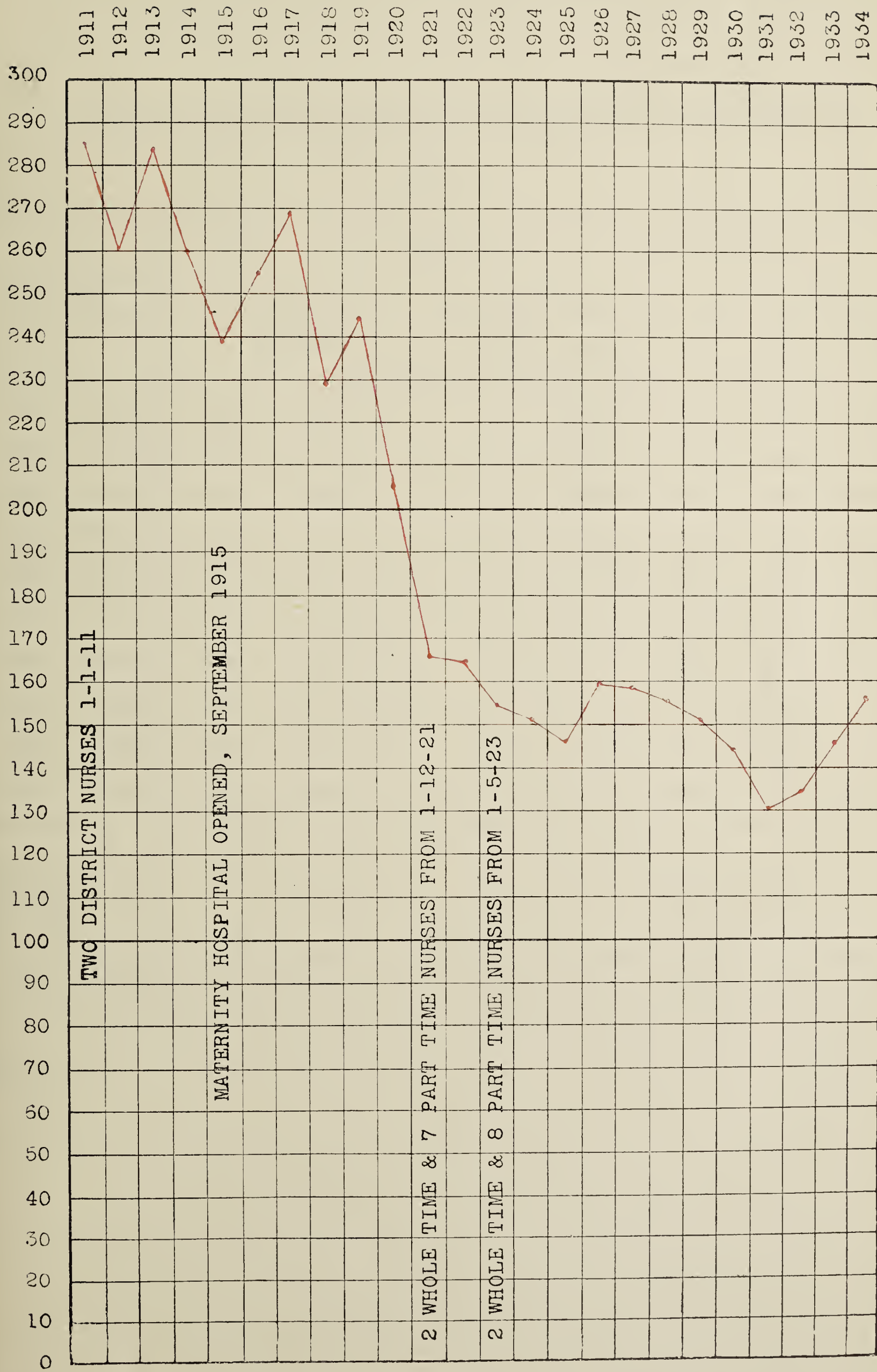
169 infants were certified as having died from convulsions; the corresponding figure for 1933 was 245.

Table VIII is unreliable, the only figures that may be used with any exactitude for comparison are those shown in Table VII, and in the Infant Mortality chart.



# PENANG MUNICIPALITY

## INFANT MORTALITY



NOTE:— Registration of births is believed to have been more accurate from September, 1920.



Table IX is given below to show a comparison between births, infant mortality and general death rate for the preceding ten years and for 1934.

TABLE IX.

Year	Estimated population	Births		Deaths under 1 year		Deaths at all ages			
		Total	Rate per thousand population	Total	Rate per thousand births	Crude Total	Corrected Total	Crude Rate	Corrected Rate
1924	130,810	4,257	32.54	641	151	3,811	3,162	29.13	24.17
1925	133,373	4,318	32.38	634	147	3,858	3,240	28.93	24.29
1926	136,000	4,434	32.60	705	159	4,396	3,570	32.32	26.25
1927	138,635	5,151	37.15	816	158	4,860	4,045	35.05	29.18
1928	141,348	5,332	37.72	826	155	4,670	3,668	33.04	25.95
1929	144,114	5,410	37.54	815	151	4,126	3,480	38.63	24.15
1930	146,935	5,630	38.32	809	144	3,939	3,259	26.81	22.18
1931*	149,964	5,315	35.44	690	130	3,710	3,241	24.74	21.61
1932	152,908	5,129	33.54	688	134	3,569	3,200	23.34	20.93
1933	156,014	5,052	32.38	737	146	3,592	3,172	23.02	20.33
Average for the preceding ten years	143,010	5,003	34.96	736	147	4,053	3,404	29.50	23.90
1934	159,085	4,977	31.28	777	156	3,935	3,492	24.73	21.95

\*Census year

### 5. CAUSE OF DEATH.

Table X shows the age, sex and cause of death certified: 891 of the certificates were from Hospitals, 757 from Private Practitioners, 24 from the Coroner and 1,820 or 52.12% of the total from the Deputy Registrar of Deaths.

In other words less than half of the cases were under medical attention before death. As the number of post-mortem examinations made was so small as to be negligible the diagnoses here tabulated must be accepted with reserve.

Since the year 1921, the Deputy Registrar of Deaths has been instructed to use the term "Unspecified Fever" for the cause of death, where the information obtainable does not seem to warrant a more definite diagnosis.



TABLE X.

Deaths.	Sex.	A g e s.													Total.	Grand Total.
		Under 1 mth.	2-3 mths.	4-12 mths.	1-5 years.	6-15 years.	16-25 years.	26-35 years.	36-45 years.	46-55 years.	56-65 years.	66-75 years.	over 75 yrs.	Un-known		
Enteric fever ...	M.	—	—	—	—	—	5	6	2	1	—	—	—	—	14	16
	F.	—	—	—	—	1	—	—	1	—	—	—	—	—	2	
Diarrhoea ...	M.	3	6	9	11	3	2	1	5	5	2	1	1	—	49	93
	F.	2	7	13	9	2	2	2	4	1	—	2	—	—	44	
Dysentery ...	M.	—	1	2	2	1	1	1	—	8	3	3	2	—	24	36
	F.	—	—	1	—	—	—	2	3	2	2	2	—	—	12	
Intermittent fever ...	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	F.	—	—	—	—	—	—	—	1	—	—	—	—	—	1	
Unspecified fever ...	M.	5	20	32	46	9	35	30	45	36	23	2	1	—	284	507
	F.	4	16	34	45	20	23	23	27	18	8	3	2	—	223	
Syphilis ...	M.	1	—	1	—	—	1	6	5	12	9	1	—	—	36	48
	F.	1	1	—	1	—	1	2	3	1	1	—	1	—	12	
Puerperal fever ...	F.	—	—	—	—	1	11	6	1	—	—	—	—	—	19	19
Other septic diseases ...	M.	1	1	2	2	3	4	4	10	6	3	6	—	—	42	69
	F.	3	1	4	3	—	2	3	2	1	6	2	—	—	27	
Pulmonary Tuberculosis ...	M.	—	2	—	—	1	30	52	57	41	15	2	2	1	203	276
	F.	—	1	—	—	1	14	25	18	6	4	4	—	—	73	
Other tubercular diseases ...	M.	—	—	2	3	3	1	1	1	2	—	—	—	—	13	17
	F.	—	—	—	2	—	—	1	1	—	—	—	—	—	4	
Leprosy ...	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
	F.	—	—	—	—	—	2	—	1	1	—	—	—	—	4	
Tetanus ...	M.	5	—	—	1	1	—	—	—	—	1	—	—	—	8	10
	F.	1	1	—	—	—	—	—	—	—	—	—	—	—	2	
Diphtheria ...	M.	—	—	1	7	—	—	—	—	—	—	—	—	—	8	13
	F.	—	—	2	2	—	1	—	—	—	—	—	—	—	5	
Influenza ...	M.	—	—	—	1	—	—	—	1	1	1	—	—	—	4	7
	F.	—	—	—	—	—	—	—	1	—	1	1	—	—	3	
Measles ...	M.	—	—	1	—	—	—	—	—	—	—	—	—	—	1	1
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Totals to carry forward...	M.	15	30	50	73	21	79	101	126	112	57	15	6	1	686	1117
	F.	11	27	54	62	25	56	64	63	30	22	14	3	—	431	

Deaths.	Sex	Ages.													Total.	Grand Total.
		Under 1 mth	2-3 mths.	4-12 mths.	1-5 years.	6-15 years.	16-25 years.	26-35 years.	36-45 years.	46-55 years.	56-65 years.	66-75 years.	Over 75 yrs.	Un- known		
Brought forward...	M.	15	30	50	73	21	79	101	126	112	57	15	6	1	686.	1117
	F.	11	27	54	62	25	56	64	63	30	22	14	3	—	431	
Malaria ...	M.	—	—	—	—	1	2	8	5	4	—	—	—	—	20	25
	F.	—	—	—	1	2	—	1	—	1	—	—	—	—	5	
Malarial cachexia ...	M.	—	—	—	—	—	—	1	—	—	—	—	—	—	1	1
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worms ...	M.	—	—	—	7	1	1	—	1	—	—	1	—	—	11	20
	F.	—	—	1	8	—	—	—	—	—	—	—	—	—	9	
Rheumatism ...	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
	F.	—	—	—	—	—	—	1	—	3	—	—	—	—	4	
Cancer ...	M.	—	—	—	—	—	—	—	6	2	3	2	—	—	13	29
	F.	—	—	—	—	—	—	1	2	7	4	2	—	—	16	
Anaemia ...	M.	—	—	—	—	—	1	—	1	—	—	—	—	—	2	14
	F.	—	—	—	—	—	4	4	2	1	1	—	—	—	12	
Beri-beri ...	M.	—	—	—	—	1	8	21	20	19	12	3	1	—	85	114
	F.	—	—	1	—	—	4	10	10	3	—	1	—	—	29	
Premature birth ...	M.	48	1	—	—	—	—	—	—	—	—	—	—	—	49	89
	F.	39	1	—	—	—	—	—	—	—	—	—	—	—	40	
‡ Old age ...	M.	—	—	—	—	—	—	—	—	—	43	62	21	—	126	254
	F.	—	—	—	—	—	—	—	—	—	39	40	49	—	128	
Convulsions ...	M.	20	40	35	16	—	—	—	—	—	—	—	—	—	111	213
	F.	16	30	28	26	1	1	—	—	—	—	—	—	—	102	
Other diseases of Nervous system	M.	—	—	1	4	1	5	4	6	6	4	2	—	—	33	60
	F.	—	—	2	—	—	9	9	3	3	—	—	1	—	27	
Organs of special sense ...	M.	—	—	1	—	1	—	—	—	—	—	—	—	—	2	2
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Circulatory system ...	M.	5	—	1	2	1	9	22	41	47	34	16	3	1	182	317
	F.	—	1	—	2	4	16	34	20	13	18	17	10	—	132	
Totals to carry forward...	M.	88	71	88	102	27	105	157	206	190	153	101	31	2	1321	2259
	F.	66	59	86	99	32	90	124	100	61	84	74	63	—	938	



Deaths	Sex	Ages.													Total.	Grand Total.
		Under 1 mth.	2-3 mths.	4-12 mths.	1-5 years.	6-15 years.	16-25 years.	26-35 years.	36-45 years.	46-55 years.	56-65 years.	66-75 years.	Over 75 yrs.	Un-known		
Brought forward...	F.	88	71	88	102	27	105	157	206	190	153	101	31	2	1321	2259
	M.	66	59	86	99	32	90	124	100	61	84	74	63	—	938	
Bronchitis ...	M.	1	9	10	7	1	2	7	15	20	26	14	2	—	114	175
	F.	1	7	4	10	1	—	2	13	10	4	6	3	—	61	
Pneumonia ...	M.	—	3	9	12	2	10	17	11	10	11	3	1	—	89	155
	F.	—	3	8	17	5	7	8	7	3	6	1	1	—	66	
Other diseases of respiratory system	M.	16	26	44	43	4	13	13	19	11	14	4	2	—	209	400
	F.	16	17	38	67	8	6	14	12	4	4	5	—	—	191	
Enteritis ...	M.	5	6	4	10	2	2	1	3	—	2	—	—	—	35	69
	F.	4	11	11	5	—	1	—	1	1	—	—	—	—	34	
Diseases of liver ...	M.	3	—	—	—	—	1	2	7	10	3	1	—	—	27	34
	F.	1	2	—	—	—	—	1	1	—	—	2	—	—	7	
Other diseases of digestive system	M.	6	1	1	1	1	3	9	3	4	5	1	—	—	35	59
	F.	2	2	1	1	1	3	2	2	6	2	1	1	—	24	
Lymphatic system ...	M.	—	—	—	—	—	—	—	1	—	—	1	—	—	2	3
	F.	—	—	—	—	—	—	—	1	—	—	—	—	—	1	
Urinary System ...	M.	—	1	—	3	5	8	8	18	28	26	12	2	—	111	214
	F.	—	—	—	3	2	16	17	20	14	14	13	4	—	103	
Generative organs ...	M.	—	—	—	—	—	—	1	—	—	—	—	—	—	1	3
	F.	—	—	—	—	—	—	—	1	—	1	—	—	—	2	
Child birth and abortion ...	F.	—	—	—	—	—	3	11	7	—	—	—	—	—	21	21
Bones and Joints ...	M.	—	—	—	—	—	—	1	—	—	—	—	—	—	1	1
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Accident & Negligence ...	M.	—	—	—	3	4	5	1	—	3	—	—	1	—	17	24
	F.	—	—	—	2	2	1	—	—	—	1	—	1	—	7	
Homicide, Suicide & Execution	M.	—	—	—	—	—	—	2	1	—	1	—	—	—	4	8
	F.	—	—	—	—	1	2	1	—	—	—	—	—	—	4	
Debility ...	M.	13	7	4	1	—	—	—	—	1	—	1	1	—	28	56
	F.	10	11	1	1	—	—	—	—	—	—	4	1	—	28	
Unknown ...	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	F.	—	—	—	—	—	—	—	—	1	—	—	—	—	1	
Diabetes ...	M.	—	—	—	—	—	—	—	—	1	3	1	—	—	5	10
	F.	—	—	—	—	—	—	—	—	2	—	3	—	—	5	
Total ...	M.	132	124	160	182	46	149	219	284	278	244	139	40	2	1999	3492
	F.	100	112	149	205	52	129	180	165	102	116	109	74	—	1493	

A comparison between the number of deaths attributed to some of the principal causes in 1934 and in the preceding ten years is shown here.

TABLE XI.

Disease	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	Average for pre- ceding ten years	1934
Pulmonary Tuberculosis ...	511	499	460	422	432	485	374	420	324	232	416	276
Pneumonia ...	188	276	349	413	312	300	249	231	120	116	255	155
Bronchitis ...	58	113	91	142	190	133	122	106	155	190	130	175
Other Respiratory Diseases	119	115	82	140	168	190	145	226	224	227	164	400
Circulatory System ...	210	177	174	220	188	204	190	190	224	256	203	317
Enteric Fever ...	9	11	8	12	23	14	15	25	37	21	17	16
Enteritis ...	9	35	42	36	35	44	62	68	72	51	45	69
Dysentery ...	81	58	89	87	94	42	49	58	32	27	62	36
Diarrhoea ...	157	125	144	149	154	157	158	116	110	108	138	93
Other Diseases of Digestive System ...	33	40	39	39	49	52	62	51	64	48	48	59
Urinary System ...	52	103	106	144	103	111	98	105	145	162	113	214
Malaria ...	52	97	134	147	168	103	89	72	57	51	97	25
Unspecified Fever ...	589	659	809	767	413	435	400	427	507	523	553	507
Syphilis ...	39	30	26	31	43	30	53	48	53	46	40	48
Convulsions ...	202	218	318	438	424	380	360	316	303	320	328	213
Other Septic Diseases ...	61	49	71	87	77	69	85	80	72	79	73	69
Beri-beri ...	15	6	9	16	11	30	14	30	50	92	27	114
Debility ...	82	61	62	61	79	56	69	51	50	52	62	56
Premature Birth ...	54	53	72	63	85	82	62	64	67	61	66	89
Old Age ...	302	287	211	293	290	242	255	236	237	221	257	254



The distribution of the chief causes of death among the various races is shown in Table XII.

TABLE XII

Cause of death.			European	Eurasian	Chinese	Malay	Indian	Others	Total
Pulmonary Tuberculosis	...	...	—	3	200	23	47	3	276
Pneumonia	...	...	—	1	103	12	39	—	155
Bronchitis	...	...	—	—	123	20	28	4	175
Other Respiratory Diseases	...	...	—	3	308	24	63	2	400
Circulatory System	...	...	1	6	243	35	27	5	317
Enteric Fever	...	...	—	2	12	2	—	—	16
Enteritis	...	...	—	1	58	1	9	—	69
Dysentery	...	...	—	—	24	2	10	—	36
Diarrhoea	...	...	—	—	75	8	9	1	93
Other Diseases of Digestive System	...	...	1	1	41	4	12	—	59
Urinary System	...	...	—	—	152	36	26	—	214
Malaria	...	...	—	—	20	1	3	1	25
Unspecified Fever	...	...	—	1	240	183	79	4	507
Syphilis	...	...	—	1	41	2	4	—	48
Convulsions	...	..	—	—	147	51	14	1	213
Other Septic Diseases	...	...	—	1	45	10	12	1	69
Beri-beri	...	...	—	1	100	9	4	—	114
Debility	...	...	—	—	34	10	12	—	56
Premature birth	...	...	—	—	58	14	17	—	89
Old Age	...	...	—	1	152	71	25	5	254

Details are appended of the sources of certification of the principal causes of death.

TABLE XIII.

Cause of death			Number certified by			
			Hospitals	Private Prac- titioners	Deputy Registrar of Deaths	Coroner
Pulmonary Tuberculosis	...	...	129	55	91	1
Pneumonia	...	...	59	77	18	1
Bronchitis	...	...	13	18	144	—
Other Respiratory Diseases	...	...	152	71	175	2
Circulatory System	...	...	54	96	165	2
Enteric Fever	...	...	7	9	—	—
Enteritis	...	...	41	20	8	—
Dysentery	...	...	14	17	5	—
Diarrhoea	...	...	3	15	75	—
Other Diseases of Digestive System	...	...	28	18	13	—
Urinary System	...	...	34	68	112	—
Malaria	...	...	14	11	—	—
Unspecified Fever	...	...	10	59	438	—
Syphilis	...	...	41	5	2	—
Convulsions	...	...	3	54	156	—
Other Septic Diseases	...	...	27	20	22	—
Beri-beri	...	...	98	13	2	1
Debility	...	...	4	16	36	—
Premature Birth	...	...	42	7	40	—
Old Age	...	...	6	14	234	—

## 6. SEASONAL MORTALITY.

The deaths and death rate for each month are here recorded.

TABLE XIV.

Month		Deaths	Death rate per thousand	Month		Deaths	Death rate per thousand
January	...	302	22.35	July	...	294	21.76
February	...	261	21.38	August	...	211	15.62
March	...	284	21.02	September	...	266	20.34
April	...	250	19.12	October	...	303	22.42
May	...	308	22.79	November	...	331	25.31
June	...	298	22.79	December	...	384	28.42

## 7. INFECTIOUS DISEASES.

Table XV shows the incidence among the various races of the principal infectious diseases which occurred during the year.

TABLE XV.

Race	Sex	Chicken-pox	Enteric Fever	Tuberculosis	Influenza	Puerperal Fever	Diphtheria	Measles	Erysipelas	Scarlet Fever	Mumps	Total
European	M.	1	—	—	—	—	—	—	—	—	—	1
	F.	—	—	—	—	—	—	—	—	—	—	—
Eurasian	M.	7	2	—	—	—	—	—	—	—	—	9
	F.	8	—	3	—	—	—	—	—	—	—	11
Chinese	M.	23	19	152	2	—	15	3	1	—	—	215
	F.	10	4	48	2	9	11	1	3	—	—	88
Malay	M.	7	3	15	1	—	—	—	—	—	—	26
	F.	3	2	8	1	10	—	—	—	1	—	25
Indian	M.	78	5	35	1	—	1	4	—	—	3	127
	F.	24	2	12	—	6	1	2	1	—	—	48
Others	M.	—	—	1	—	—	—	—	—	—	—	1
	F.	—	—	2	—	—	—	—	—	—	—	2
Total	M.	116	29	203	4	—	16	7	1	—	3	379
	F.	45	8	73	3	25	12	3	4	1	—	174
Grand Total		161	37	276	7	25	28	10	5	1	3	553



Table XVI shows the main figures for the last 26 years relating to births, deaths, and infant mortality.

TABLE XVI.

Year	Total number of		Birth rate	Crude death rate	Infant Mortality
	Births	Deaths (crude)			
1909	1656	3923	16.15	38.25	337 (a)
1910	1905	3912	18.39	37.76	290
*1911	2133	4045	21.02	39.88	287 (b)
1912	2421	3829	23.69	37.47	261
1913	2464	3794	23.95	36.86	284
1914	2545	3774	24.55	36.40	260
1915	2808	3390	26.89	32.46	239 (c)
1916	2708	3341	25.74	31.76	255
1917	3099	4071	29.25	38.42	269
1918	2940	4909	27.55	45.99	229
1919	3203	4466	28.86	41.54	244
1920	3321	4090	30.67	37.75	205
*1921	3768	3775	30.56	30.61	167 (d)
1922	3738	3768	29.71	29.94	166
1923	4028	3801	31.39	29.62	155 (e)
1924	4257	3811	32.54	29.13	151
1925	4318	3858	32.38	28.93	147
1926	4434	4396	32.60	32.32	159
1927	5151	4860	37.15	35.05	158
1928	5332	4670	37.72	33.04	155
1929	5410	4126	37.54	28.63	151
1930	5630	3939	38.32	26.81	144
*1931	5315	3710	35.44	24.74	130
1932	5129	3569	33.54	23.34	134
1933	5052	3592	32.38	23.02	146
1934	4977	3935	31.28	24.73	156

\*Census year

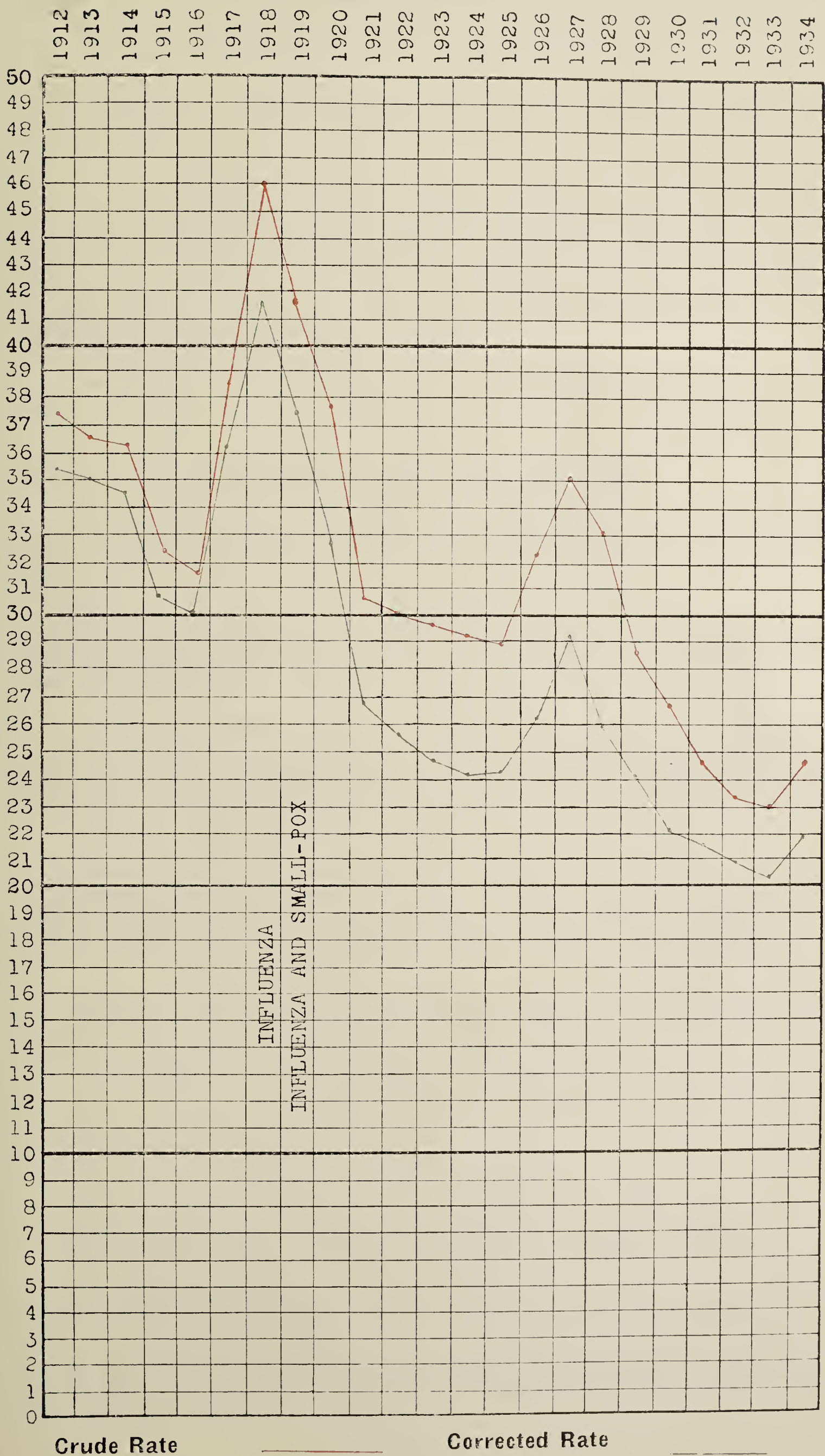
Note:—

- (a) 1st January, 1909—one District Nurse.
- (b) 1st January, 1911—two District Nurses.
- (c) September, 1915—Maternity Hospital opened.
- (d) 1st December, 1921—two whole-time and seven part-time District Nurses.
- (e) 1st May, 1923—two whole-time and eight part-time District Nurses.



# PENANG MUNICIPALITY

## DEATH RATES





## 8. REGISTRATION OF BIRTHS AND DEATHS.

The system of registration is simple and well carried out.

Notifications of both births and deaths may be made at any Police Station or at the Municipal Offices.

Births are notifiable within fourteen days, or, on payment of a late fee, within forty-two days. Earlier notification would enable the Health Sisters to see the mother and baby at a time soon after birth, and would probably save many of the babies who now die within the first week. Unfortunately, as the law stands, we cannot enforce earlier notification, but there has been a definite increase in the number of early notification in cases attended by midwives who are supplied with notification forms and instructed to fill them up immediately and despatch them to the Health Office.

Deaths must be notified within twelve hours, or on payment of a late fee, within three days.

## 9. MATERNITY AND CHILD WELFARE.

The work in this department is under the immediate supervision of the Deputy Health Officer who inspects each week the records of visits made by the Health Sisters and the part-time nurses.

There are two whole-time Health Sisters—Miss H. Flint and Miss F. M. Sloan. The title of these appointments was formerly District Nurse; it was changed to conform with the title of similar Government appointments. Two Municipal cars are kept for the use of the Health Sisters.

Eight locally qualified midwives are employed as part-time nurses. They are engaged for a period of six months but for a month preceding their appointment a Health Sister instructs each in the routine of the work and introduces her to the district in which she will visit. If there are no suitable applicants on the waiting list and the work of the nurse merits it, she may be retained for a longer period than six months.

The area covered by the maternity and child welfare work includes only the more thickly populated part of the town. This area is divided into two, each half being supervised by a Health Sister with four nurses working under her. The total number of visits made by the Health Sisters and nurses was 54,941, an increase of 403 over 1933.

At the end of the year the midwives registered under the Midwives Ordinance 1923 were:—

Class "A" — 72

Class "B" — 240

Class "C" — 14

Class "A" includes those who after a twelve months' course of practical and theoretical training in midwifery obtain the Diploma granted under the Midwives Ordinance.

Class "B" are those who after a non-specified period of practice in midwifery gain the Certificate under the Midwives Ordinance.

Class "C" comprise the local "bidans" or unqualified midwives who were registered after the Central Midwives Board (S.S) had certified that they possessed a competent practical knowledge of midwifery.



The following is the routine method of getting in touch with the mother and newly born child. When a birth is notified, a sanitary sub-inspector proceeds to verify or correct the address supplied; the number of corrections necessary is surprising. A list of these addresses is given daily to the Health Sisters who on the following day visit the houses to see what is required. If the case is already under medical supervision, the responsibility rests on the practitioner attending. If a certified midwife is in attendance, she is expected to continue daily visits for the first ten days. All other cases are looked after by the part-time nurses for as long as may be necessary, the Health Sister revisiting when required.

The infant mortality for 1934 was 156.

141 babies died under the age of seven days and 52 between the ages of seven and fourteen days.

Of the 777 infants who died under the age of one year, 232 were less than one month old and 236 were between one month and three months old.

In spite of the invaluable work which is done by the Health Sisters and nurses we cannot in the Penang Municipal area claim to have more than the merest beginning of a Maternity and Child Welfare Scheme. It is hoped that, as the slump becomes less excuse for the stagnation, and in some cases the retrogression, of the last few years, something may be done to extend the work of caring for the mother and child. It cannot be denied that much of the trouble of later years has its origin in neglect and carelessness in the early days of life, often due to ignorance and the bad habits of the past. It is heartbreaking work to try and undo the evil habits of generations but the history of public health in more advanced countries proves the value of this branch of our work and encourages us to persevere even in the little we are able to do.

## 10. VACCINATION.

Public vaccination within Municipal limits is performed chiefly by our staff.

Our system of infant vaccination has not changed in recent years. When a sub-inspector visits to verify the address in the case of a notification of birth, he advises the parents of the value of early vaccination and delivers the formal vaccination notice as required by law.

Six months after the birth, if no report has been received notifying the completion of the vaccination, or the removal from town, or the death of the child, the house is revisited and the parents reminded, both verbally and by a formal notice, that vaccination is overdue.

Practically all the vaccinations are done by house to house visitation and the results are satisfactory. Two sub-inspectors act as whole time vaccinators.

4,977 births were reported during the year.

Our staff did 3,643 vaccinations of which 3,178 were primary and 465 secondary. In addition, Government vaccinators during the year performed 3,304 secondary vaccinations, mostly in schools, while 971 primary vaccinations were performed by private practitioners.

The work of vaccination has run smoothly throughout the year and no serious results have been reported.



## II. ANTI-MOSQUITO WORKS.

At the beginning of the year our Indian labour force consisted of 64 coolies and 60 boys or "chokras". At the end of three months we reduced our coolie force to 55. The reduction in coolies was the result of improvement in the supervision of the gangs. Formerly one coolie from each gang was promoted on merit to act as tindal but it was found that better results could be achieved by more intelligent supervision. In consequence, four assistant supervisors were appointed to take charge of the gangs and, to meet the extra wages resulting from these higher appointments, the number of labourers was reduced. The better supervision fully justified itself, for in spite of the reduction of the labour force it was found that the smaller gangs did more work and there were fewer of the inevitable quarrels which are associated with Tamil labour.

The work done by this labour force was the same as formally, clearing and training streams and stagnant ditches, filling in pools and hollows and cutting undergrowth — all potential breeding or harbouring places for mosquitoes.

The oiling gangs, including the special hill gang, continued their work in the areas where permanent stagnant water was found and along the banks of the streams. The hill gang concentrated along the hill slopes surrounding the town and one cannot exaggerate the importance of this work in view of the impending danger of invasion by malaria-carrying mosquitoes from these areas.

As the result of the heavy rainfall during the year, the oiling gangs were kept very busy and the guarding against new breeding sites called for all the supervision possible. From the middle of April until the middle of November there was not a fortnight free from the occurrence of heavy rain. Consequently, as compared with 1933, there was an increase in the expenditure on oil amounting to just over \$1,500. This too does not give a true comparison as a more economical method of oiling was adopted.

Heavy rainfall and the consequent flooding is at first a help to the control of mosquito breeding as it washes away the eggs and larvae and prevents their hatching. This fact was taken advantage of and during the wet weather several streams were not regularly oiled but merely watched and oiled sparingly on sites where larvae were found. In the end, however, these floods add considerably to the work of the oilers by increasing the pockets in the ravines and actually starting fresh ravines, especially on the denuded hill sides.

In another department too the abnormally heavy rainfall made the work increasingly difficult. I refer to the work of the "chokras" who go round the town picking up tins, bottles, old coconut husks and anything which might act as a water container. This was well done and it is largely to these gangs that Penang owes its comfort. The supervisors, as they go round with the boys, look for possible breeding places in the gardens and servants' quarters of the larger houses and it is gratifying that the public on the whole are beginning to realise that these public servants are really trying to help. Formerly the attitude was one of resentment but that is gradually dying out; it would be wrong to say that it has died out as it is surprising what difficulties some householders, I hope thoughtlessly, put in the way of public servants performing their duty. As these boys visit fixed areas fairly regularly, it does not appear to me that it would be very difficult for these householders who have dogs to see that the animals are controlled in some way during the mornings when inspections are made. It is not always easy to find the breeding places of mosquitoes and a dog snapping at one's heels does not help.

The mosquito larvae found throughout the town were brought to the office by the Sanitary Sub-Inspectors and supervisors and allowed to hatch out. The records showed that *A. maculatus*, our best known malaria carrier, could always be found in the hill streams beyond our oiling area and on one occasion the larvae were found in a well and on another occasion in puddles below a quarry within this area. Other types of anophelines found besides the common and, as far as we know, harmless *A. malayensis*, were *A. kochi*, *A. barbirostris* and on one occasion *A. sinensis*.

The complaints received about mosquitoes were practically always due to *Aedes argenteus* or the tiger mosquito and less frequently to other types of culicines. These were practically always found within the compound of the complainant. Nevertheless we are glad to receive these complaints as they enable us to destroy breeding place early. Our investigations frequently prove one householder in a district to be the culprit. Repeated carelessness leads to his receiving an official reminder of the possibility of a \$500 fine or six months imprisonment. This is usually sufficient to rouse the most dormant householder, resulting in peace to the neighbours for some months.

In increasing numbers, the residents in the Municipality have dispensed with the use of mosquito nets without any apparent increase in malaria. It has been our contention for some years that practically no malaria was contracted within the Municipal limits. The possibility of infected mosquitoes having been brought into the town area in buses or other vehicles has not been overlooked, but it is much more likely that the human receptor is infected when visiting malarious areas outside.

The following facts derived from the investigation of 19 reported deaths from malaria rather bear this out. One case from Siam, one from Sumatra, one from Perak, one from Dindings and one seaman all gave histories of arriving in Penang suffering from fever and never recovered. Five contracted fever in Province Wellesley, four in Kedah and three in the rural area of Penang Island; no history could be obtained in the case of death in hospital of a Chinese over 50 years of age. Another Chinese over 50 years old had not been outside Municipal limits.

However encouraging these enquiries may prove from the Municipal Health point of view, they emphasise the need for continued vigilance so that the few cases which come into the Municipality from outside will not become the means of spreading infection. Since we know how plentiful the malaria-carrying mosquitoes are on the outskirts of the town it is essential that measures should be continued and, if necessary, increased in order to prevent their entrance.

The total oil consumption for the year was 92,800 gallons of Anti-Malarial Mixture, the cost being \$15,196.

Towards the cost of work done by the Health Department coolies on private property the sum of \$1,141-77 was reimbursed.

## 12. PERMANENT ANTI-MALARIAL WORKS.

In the first month of the year the subsoil draining in land adjoining the north-east boundary of the Batu Gantong Cemetery was finished. This completed one part of the scheme for constructing cement concrete drains into which varying sizes of subsoil pipes discharge.

The gang next started work on a cement concrete drain in the Brook Road area to replace the ditch into which the subsoil pipes discharged. This ditch frequently became silted up with sand and required almost fortnightly attention in order to keep the subsoil outlets clear. During February and March the work progressed well and 400 feet of earthenware inverts on a concrete base and the rough concrete work of the sides of the drain had been completed. However, in April the rain became so persistent that it was found impossible to continue with the cement facing of the sides. The work was continued in November and finished before the end of the year.

About the beginning of the year the Turf Club Committee enquired about the possibility of filling in the drains surrounding the tracks and they approached me for advice as to a drainage scheme. With the help of the Municipal Engineer a complete scheme of drainage was prepared and agreed to by the Turf Club Committee. One of our gangs was taken over by the Turf Club and started work on 21st May, the supervision being done by the Municipal Health Department. Many of the ditches were filled in and subsoiling started. The work was still in progress at the end of the year.



### 13. TUBERCULOSIS.

There was a definite increase in the number of deaths certified under Tuberculosis in 1934 as compared with 1933 but there was a decrease in the number of deaths under the heading of Unspecified Fever. As pointed out in last year's report these two returns should be considered together; for more than 50% of the total deaths are certified as the result of investigations by the Deputy Registrar of Deaths, there having been no medical attendant called previous to death. The reason given for not calling a doctor was practically always that there was no money to pay for the doctor's fees. No doubt this is true in some cases but it is amazing in how many others unqualified "native doctors" have been called. Often the qualified medical practitioner is consulted only after the "native doctor" has done his worst and when the patient has reached a stage beyond human help. This custom is not by any means confined to the poor and ignorant. If it were so, there might be more reason to hope that the time is near when the general public will give the qualified doctor a fair chance. It is difficult to see how the menace of the "sin seh" or "bomo" can be dealt with but one can only hope that education in health matters, which is one of the main objects of a health department and always kept in the fore front of our daily work, will ultimately bear fruit.

Our registration of Common Lodging Houses is one way of educating the masses on the danger of overcrowding and our night inspections, which we revived last year, show clearly the evil of overcrowding which contributes liberally to our deaths from Tuberculosis. Details of these inspections are given in the report by the Chief Sanitary Inspector and it is sufficient to mention here that, out of the 128 Common Lodging Houses, 90 proved to be overcrowded beyond the 10% excess which we allow without prosecution. The fact that some 30% of the total had 50% more people in occupation than was allowed emphasises the gross misuse which is made of many structurally sound and, if properly used, sanitary dwellings. It further shows the need for cheap homes; and, as few of the houses in Penang are suited for adaptation into the cubicle type of building which seems so popular, the erection of houses, designed and built as Common Lodging Houses, would appear a sound proposition.

Another factor which adds to the toll paid to Tuberculosis is the crowding together of children in small rooms in unsuitable school buildings. In many cases the rooms are so badly lighted that an ordinary newspaper placed on the desk cannot be read by normally sighted persons. If it were only the eyesight of the pupils that was being ruined, that in itself would be sufficient to condemn the premises; but, when it is realised that the ventilation is equally bad and that no playground is available, the amount of harm that is being done to the general health of the children can be well realised by those who know how much depends on the standard of physical development during the years of growth. This dark picture has its bright side in that the demand for education has resulted in the building of up-to-date healthy schools with large playing fields and self contained eating sheds. As these better schools progress it will follow that the demand for those small unhealthy ones will lessen and it takes little imagination to realise the benefit which will result in a generation when teaching is done in hygienic premises by authorities who realise the value of physical fitness in the realm of education.

### 14. ENTERIC FEVER.

37 cases were reported: 2 were Eurasians, 23 Chinese, 5 Malays and 7 Indians.

26 cases were treated in Hospital: 8 died and 18 recovered.

11 remained at home: 8 died and 3 recovered.

The total number of cases is 7 less than the number reported in 1933.

### 15. CHICKEN-POX.

161 cases were reported, 122 of which were admitted to the Quarantine Camp.

Of the total 1 was European, 15 were Eurasians, 33 Chinese, 10 Malays and 102 Indians.

50 cases were under ten years of age, 111 were over that age, their ages ranging from 2 months to 55 years.

As usual the Indians showed a distinct susceptibility to this disease, the number affected being quite out of proportion to the size of the community.

#### 16. PUERPERAL FEVER.

25 cases were reported compared to 7 in 1933.

9 were Chinese, 10 Malays and 6 Indians: 19 died and 6 recovered.

#### 17. INFLUENZA.

Under Ordinance No. 157 (Quarantine and Prevention of Disease) this is classified as a dangerous infectious disease.

7 cases were reported, 4 were Chinese, 2 Malays and 1 Indian. All died.

One case each was reported during the months of January, November and December, and 2 each in April and July.

All cases were notified by general practitioners.

#### 18. MEASLES.

This infectious disease is not notifiable under Ordinance No. 157 (Quarantine and Prevention of Disease). Each year some cases come under our attention, but the disease has never assumed epidemic proportions.

10 cases of Measles were reported, 4 Chinese and 6 Indians. 5 cases were treated at the Quarantine Camp: all recovered. 3 cases were treated in hospital: all recovered. 2 remained at home: 1 died and 1 recovered.

#### 19. ERYSIPELAS.

5 cases were reported: 4 were Chinese and 1 Indian. 4 were treated in hospital and recovered: 2 were treated at home and died.

#### 20. SCARLET FEVER.

One case, a Malay, was reported in March. She was treated at home and recovered.

#### 21. MUMPS.

3 cases were reported: all were Indians. They were treated at the Quarantine Camp and recovered.

#### 22. DIPHTHERIA.

13 deaths from Diphtheria were recorded during 1934; two less than the previous year. The notifications numbered 28 as compared with 46 for 1933. Separate cases are the rule and usually it is found impossible to trace the infection. This may seem a confession of failure, but I feel sure that those who know will agree that the difficulties encountered in attempting to trace the origin of infection amongst the native population are, as a rule, insurmountable.

Of the 13 fatal cases, one was notified a week before death, the remaining 12 notifications being received almost at the same time as the death certificates. This indicates that the general practitioner was called in at the last possible moment, a fact greatly to be regretted, as there are few diseases which respond successfully to early treatment as consistently as does Diphtheria.

It is with much gratitude that I record the co-operation of the Government Bacteriologist in the examination of swabs.



I show here the monthly incidence (Table XVII).

TABLE XVII.  
DIPHTHERIA 1934.

Month	Cases reported	Deaths
January ...	2	1
February ...	4	1
March ...	4	2
April ...	2	1
May ...	1	—
June ...	2	—
July ...	2	1
August ...	2	1
September ...	5	2
October ...	—	—
November ...	2	2
December ...	2	2
Total ...	28	13

TABLE XVIII.  
DIPHTHERIA IN PENANG MUNICIPALITY.

	Estimated population (mid-year)	Year	Total cases reported	Deaths
	98,381	1905	1	1
	99,400	1906	—	—
	100,429	1907	3	1
	101,469	1908	4	2
	102,520	1909	1	1
	103,582	1910	4	2
Census (10th March)	101,182	1911	2	1
	102,167	1912	3	3
	102,913	1913	3	2
	103,664	1914	1	1
	104,420	1915	2	2
	105,183	1916	—	—
	105,950	1917	4	4
	106,723	1918	2	2
	107,502	1919	4	3
	108,286	1920	1	1
Census (25th April)	123,187	1921	5	4
	125,834	1922	4	2
	128,300	1923	4	4
	130,800	1924	4	2
	133,373	1925	8	6
	136,000	1926	6	5
	138,635	1927	8	5
	141,348	1928	15	5
	144,114	1929	11	5
	146,935	1930	20	10
Census (2nd April)	149,964	1931	23	9
	152,908	1932	29	13
	156,014	1933	46	15
	159,085	1934	28	13

## 23. INFECTIOUS DISEASES HOSPITAL, PERAK ROAD.

133 patients and 43 contacts were admitted.

Details of disease and race are shown in Tables XIX and XX.

TABLE XIX.

Disease	Remaining on 31.12.33.	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining on 31.12.34.
Chicken-pox ...	2	122	124	119	*1	2	—	2
Measles ...	—	6	6	5	—	1	—	—
Mumps ...	—	3	3	—	—	—	—	3
Chicken-pox with Scabies	—	2	2	2	—	—	—	—
Contacts ...	—	43	43	43	—	—	—	—
Total ...	2	176	178	169	1	3	—	5

\*Transferred to General Hospital for Beri-beri.

TABLE XX.

Race	Remaining on 31.12.33.	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining on 31.12.34.
Eurasian ...	—	1	1	1	—	—	—	—
Chinese ...	—	31	31	31	—	—	—	—
Malay ...	—	14	14	14	—	—	—	—
Indian ...	2	126	128	119	*1	3	—	5
Others ...	—	4	4	4	—	—	—	—
Total ...	2	176	178	169	1	3	—	5

\*Transferred to General Hospital for Beri-beri.

## NOTES.

1. The Camp was vacant from 4th August to 16th August, 6th October to 18th October and 16th December to 22nd December inclusive.
2. 50 cases were admitted on personal application.



## 24. MARKETS.

We have one private general market, six public general markets, one public pig market and one public fish market.

The Municipal Engineer's Department is responsible for the sanitation of the public markets, but inspections are made frequently by officers of the Health Department.

The improvement generally is very satisfactory.

## 25. THEATRES.

All theatres and cinemas were inspected once a week. The standard of sanitation remains good.

## 26. MEDICAL ATTENDANCES.

Medical advice or treatment was given to Municipal employees 12,977 times.

The total for 1933 was 5,186 and for 1932 was 4,011.

The number seen per month varied from 644 in January to 1,294 in May.

The numbers seen in the different departments were:—

Engineer 9,596, Health 1,636, Electrical 848, Fire Brigade 62, Jinricksha 9, Water 538, Secretariat 210 and Veterinary 78.

The marked increase in this branch of our work is the result of the clinic being opened in the coolie lines and the appointment of a whole-time dresser. The result of this should be a considerable saving in labour hours lost through sickness or attendance for minor dressings.

## 27. SALE OF FOOD AND DRUGS ACT.

Under the Sale of Food and Drugs Act the work done by the Health Department is mostly concerned with the sale of fresh milk. The bulk of the milk sold in town is brought from outside, a large proportion of it coming from Province Wellesley. When a milk vendor from the Province applies for a licence to sell milk in Penang, his application is referred to the Health Officer, Province Wellesley, and unless a satisfactory reply is received, stating that the cows are kept in a sanitary cow shed, his licence is refused. Every new applicant for a licence and all licensees before renewal of their licences are medically examined and a suspicion of Tuberculosis or any other infectious disease results in a refusal. There are 198 licensed milk sellers in 1934.

One Milk Inspector is employed by the department. He frequently finds people selling milk without a licence, most of whom on being warned apply for a licence but there are always a few who have to be prosecuted before they will go through the routine examination. The Inspector made 5,831 lactometer tests during the year. By means of the Tustmun Sediment Tester he also examines milk for contamination by dirt and dust.

The Deputy Health Officer and Chief Sanitary Inspector with the Sanitary Sub-Inspectors made several afternoon inspections testing in all 47 samples.

From the 5,878 tests made only 14 samples appeared to be below standard, but only 4 proved, on analysis, to have added water. The amount of adulteration in these varied between 13 to 20 parts per cent of added water. These vendors were prosecuted and convicted and fined \$77.50 and costs \$22.00.

19 vendors were prosecuted on other charges and all were convicted: 4 for failing to carry their licences: 4 for failing to expose their badges: 10 for selling milk without licences, and 1 for using his milk can other than for fresh milk.

The total amount of fines imposed on milk vendors was \$225.50.

## 28. DESTRUCTION OF RATS.

As there is no record of the occurrence of plague in Penang in recent years, the destruction of rats is perhaps to be regarded as an economic rather than as a sanitary proceeding.

A special gang of six coolies with one Assistant Supervisor was detailed: they used direct slaughter after smoking out the runs, and to a less extent poison and traps.

By direct slaughter they accounted for 6,951 rats during the year.

## 29. WATER SUPPLY.

There was throughout the year an ample supply of good drinking water, the average daily consumption being 41 gallons per head, including water used for trade purposes and shipping.

## 30. FINANCIAL.

The total expenditure for the year was \$151,540.

This includes the Quarantine Camp, the Maternity and Child Welfare Work, Vaccination, Anti-Mosquito Work, all pay and allowances and the Commissioners' donation to the Provident Fund of our staff.

The revenue was \$13,421 leaving \$138,119 as the cost of the department to the rate-payers.

This represents a Rate of 2.553 per cent. or 6.13 pence in the pound sterling.

The estimated population being 159,085, the total cost of the department for the year per head of population is about 88 cents or about two shillings sterling.

## 31. STAFF.

Dr. E. W. Graham arrived in Penang and assumed duties as Deputy Health Officer on 21st June.

Miss F. M. Sloan, Health Sister, went on six months' home leave from 8th November.

The undermentioned resigned their appointments:—

Mr. Martin Loh, Chief Registration Clerk, retired 31st August after 25 years service.

Mr. H. L. McCulloch, Sanitary Inspector, retired 31st May after 22 years service.

Mr. Low Cheng Cheow, Sanitary Sub-Inspector, 31st December.

The undermentioned dismissals were made:—

Mr. P. Gautier, Sanitary Sub-Inspector, 13th September.

Mr. Ahmed bin Haji Ismail, Supervisor, 30th June.

The undermentioned appointments were made:—

Mr. E. D. Joseph, 2nd Clerk, promoted Chief Clerk, 1st September.

Mr. Goh Swee Hock, Clerk, 1st September.

Mr. E. V. Lessler, Sanitary Sub-Inspector, promoted Sanitary Inspector, 1st June.

Mr. C. B. de Souza, temporary Sanitary Sub-Inspector, made permanent 1st January.

Mr. M. B. Pestana, an apprentice in the Tramways Département, transferred as Sanitary Sub-Inspector, 1st July.

Mr. N. Rethinam, Dresser, 15th January.

Mr. A. de Mello, temporary Supervisor, made permanent 1st July.

Mr. Md. Shah bin Sutan Daik, Process Server, promoted Assistant Supervisor, 1st April.

Mr. Sheriff bin Salleh, Process Server, promoted Assistant Supervisor, 1st April.

Mr. Kassim bin Ibrahim, Assistant Supervisor, 1st April.

Mr. F. L. Alphonse, Assistant Supervisor, 1st April.

Mr. Ali bin Ismail, Assistant Supervisor. 1st April.

Mr. Ahmed bin Md. Shah, Assistant Supervisor, 1st April.

Mr. Ishak bin Ismail, Process Server, 1st April.

I have to record with pleasure my appreciation of the co-operation which has been given by the entire staff.

I have the honour to be,

Gentlemen,

Your obedient servant,

(Sd.) W. H. BRODIE,

Municipal Health Officer.



Penang. 30th July, 1935.

To

The Municipal Health Officer,  
Penang.

Sir,

I have the honour to submit the report of the work done by the staff during the year ending 31st December, 1934.

## GENERAL SANITATION.

The staff made 36,564 inspections and 57,128 re-inspections, in which 1,544 premises were found defective and 2,341 dirty.

The following table shows how the notices were dealt with during the year.

Notices			Outstanding on 31.12.33	Unserved on 31.12.33	New notices issued 1934	New notices served 1934	Unserved on 31.12.34	Complied with in 1934	Work proceed- ing on 31.12.34	Cancelled in 1934	Brought for- ward to 1935
Nuisance	...	...	86	1	83	84	—	128	—	—	42
Lime Washing	...	...	18	—	204	204	—	208	1	2	12
Latrines	...	...	31	1	284	284	1	286	—	2	27
Drains	...	...	12	—	103	102	1	102	1	—	12
Filthy Premises	...	...	10	—	679	679	—	680	—	—	9
Common Lodging Houses	...	...	5	—	749	749	—	699	—	7	48
Trades	...	...	—	—	1006	1006	—	910	—	—	96
Bakeries	...	...	1	—	1187	1187	—	962	—	4	222
Bylaws	...	...	21	—	584	584	—	559	9	2	44
Wells	...	...	5	—	24	24	—	24	—	—	5
Partitions	...	...	36	—	361	361	—	363	2	1	33
Open Space	...	...	14	—	214	214	—	207	3	2	19
Mosquito Orders	...	...	51	1	302	302	1	325	17	—	28
Rats	...	...	2	—	191	191	—	191	1	1	1
Disinfection	...	...	—	—	429	429	—	427	—	2	—
Closing Order	...	...	4	—	8	8	—	11	—	—	1
Lodging House (Minor Offences Ordinance)			—	—	15	15	—	15	—	—	—
Total	...	...	296	3	6423	6423	3	6097	34	23	599

23 notices were cancelled for various reasons.

128 nuisance notices were complied with during the year. These dealt with 269 houses of which 32 were structurally altered to provide better light and ventilation, 18 houses were generally repaired, 145 were either closed or demolished and 74 for other nuisances.

Complaints were received daily, many of them anonymous and all were investigated and dealt with.

#### WELLS.

24 notices under Section 247, Ordinance No. 135 (Municipal) were served and 5 brought forward from 1933. 24 notices were complied with resulting in the closing of a like number of wells.

20 of these wells were abolished as a result of co-operation between this Department and the Water Department which resulted in the laying of a 2" service main along Batu Gantong Road.

#### CEMETERIES.

The Sub-Inspector in charge made 266 visits to the cemeteries.

#### EXHUMATIONS.

31 applications for the exhumation of bodies were received but only 26 were approved and the bodies exhumed under special licence.

#### PASSENGERS.

262 passengers arrived from infected ports and were kept under observation by the staff, as against 259 last year.

#### PLANS.

247 plans, submitted for approval by the Commissioners, were examined in this office, as against 209 last year.

#### PROSECUTIONS.

269 summonses were issued		264 convictions	
during the year		7 withdrawn	
96 were brought forward		94 carried forward	
from 1933			
Total	365	Total	365

19 Abatement of Nuisance, 9 Closing and 1 Demolition Order were obtained.

The fines imposed by the Magistrate amounted to \$1,909 as against \$1,242 the previous year.

## DISINFECTIONS.

502 houses were disinfected during the year for the following causes:—

Tuberculosis	...	...	244
Diarrhoea ...	...	...	82
Chicken-pox	...	...	70
Enteritis ...	...	...	38
Dysentery ...	...	...	24
Enteric Fever	...	...	22
Diphtheria	...	...	18
Erysipelas	...	...	2
Leprosy ...	...	...	1
Scarlet Fever	...	...	1
Total			502

The houses disinfected being distributed as follows:—

TUBERCULOSIS:— Chulia Street (11); Perak Road (8); Magazine Road, Dato Kramat Road, Burmah Road and Gladstone Road (7 each); Argyll Road and Sungei Pinang Road (6 each); Jelutong Road, Macalister Road, Macalister Lane, Noordin St., Cintra St., Bridge Street, Campbell St., Kimberly Street and Carnarvon Street (5 each); East Jelutong, West Jelutong, Patani Road, York Road, Jahudi Road, Hutton Lane, Lorong Slamat, Penang Road, Beach Street, Penang Street, and Prangin Road (4 each); McNair Street, Kedah Road, Ayer Itam Road, Buckingham Street and Hongkong Street (3 each); Rope Walk, Toh Aka Lane, Presgrave Street, Tek Soon Street, Stewart Lane, Muntri Street, Lorong Saratus Tabun, Love Lane, Northam Road, Tamil Sreet, Caunter Hall, Tye Sin Street, King Street, Sungei Ujong Road, Victoria Street, McCallum Street, Brick Kiln Road and Pahang Road (2 each); Armenian Street Ghaut, Seck Chuan Lane, Acheen Street, Ah Quee Street, Market Street, Prangin Lane, Kampong Malabar, Cheapside, Queen St., Kuala Kangsar Road, Western Road, Tanjong Tokong Road, Batu Lanchang, Green Lane, River Road, Chow Thye Road, Waterfall Road, Ipoh Lane, Bukit Dumbar, Gopeng Rd., Armenian Street, Kampong Deli, Irving Road, Katz Street, Selangor Road, Seang Tek Road, Dato Koyah Road, Transfer Road, Kinta Lane, Chulia Lane, Chin Ho Square, Ho Tiang Wan Road, Dunlop Road, Sri Bahari Road, Madras Lane, Nanning Street, Downing Street, Market Street Ghaut, Halfway Road, Aboo Sittee Lane, Kuantan Road, Kampong Kolam, Bishop Street, Maxwell Road, Soo Hong Lane and Malay Street Ghaut (1 each).

DIARRHOEA:— Burmah Road (6); West Jelutong (5); Bridge Street, East Jelutong and Perak Road (4 each); Muntri Street, Magazine Road, Caunter Hall and Sungei Pinang Road (3 each); Madras Lane, Stewart Lane, McNair Street, Cecil Street, Noordin Street, Campbell Street and Queen Street (2 each); Jelutong Road, Edgecumbe Road, Perak Lane, Green Lane, Ipoh Lane, Trusan Rd., Patani Rd., Ayer Itam Rd., Singora Lane, Penang Road, Siam Road, Anson Road, Rangoon Road, Argyll Road, Market Lane, Tye Sin Street, Victoria Street, Chowrasta Road, Rope Walk, Presgrave Street, China Street, Seck Chuan Lane, Cintra Street, Kimberley Street, Chulia Street, Claimant Place, Malay Street, Beach Street, Carnarvon Street, Mount Erskine Road, Service Rd., Gottlieb Road and Barrack Road (1 each).



CHICKEN-POX:— Patani Road (6); Dato Kramat Road (5); Sri Bahari Road, Kedah Road, Halfway Road, Anson Road, Macalister Road, Burmah Road and Gaol Rd. (3 each); Lorong Slamet, Hutton Lane, Green Hall and Kampong Java Bharu (2 each); East Jelutong, Ayer Rajah Road, Clove Hall Road, Immigration Road, Seang Tek Road, Perak Road, Perlis Road, Irving Road, Muntri Street, Kampong Malabar, Perak Lane, Praugin Road, Kelewei Road, Market Street, Brick Kiln Road, Singora Lane, Northam Road, Jahudi Road, Kek Chuau Road, Pahang Road, Coolie-Lines Road, Bagan Serai Road, Gladstone Road, Kuantan Road, Campbell Street, Western Road, Queen Street, Lim Mah Chye Road, West Jelutong and Ho Tiang Wan Road (1 each).

ENTERITIS:— Chulia Street, Noordin Street, Rope Walk, Beach Street, Jelutong Road, Burmah Road, Bridge Street, Presgrave Street and East Jelutong (2 each); Leith Street, Stewart Lane, Macalister Road, Armenian Street Ghaut, Carnarvon Lane, Armenian Street, Cantonment Road, Nanning Street, Maxwell Road, Malay Street, McNair Street, Kimberley Street, Toh Aka Lane, Barrack Road, Hutton Lane, Argyll Road, Cintra St., Weld Quay, Penang Street and West Jelutong (1 each).

DYSENTERY:— Rangoon Road, Noordin Street, River Road and Hutton Lane (2 each); Macalister Lane, Market Street Ghaut, Bangkok Lane, Praugin Road, Presgrave Street, King Street, Free School Road, Caunter Hall, Perak Road, Northam Road, Weld Quay, Acheen Street, Soo Hong Lane, Carnarvon Street, Aier Itam Road and Selama Rd. (1 each).

ENTERIC FEVER:— Lorong Slamet, Chulia Street and Muntri Street (2 each); Khoo Sian Ewe Road, Transfer Road, Pitt Street, Market Street, Noordin Street, Seck Chuan Lane, Victoria Street, China Street, Penang Road, East Jelutong, Malay Street, Cintra Street, Kimberley Street, Tek Soon Street, Jelutong Road and Edgecumbe Road (1 each).

DIPHTHERIA:— Chulia Street, China Street and Bridge Street (2 each); Chulia Lane, Stewart Lane, Lorong Slamet, Penang Road, King Street, Queen Street, Aboo Sittee Lane, Katz Street, Cintra Street, Cecil Street, Campbell Street and Gopeng Road (1 each).

ERYSIPELAS:— Penang Road and Lumut Lane (1 each).

LEPROSY:— Chulia Street (1).

SCARLET FEVER:— Penang Road (1).

## TRADES.

The fees collected during the year for trade licences amounted to \$8,250.00 as against \$8,499.60 the previous year, a decrease of \$249.60. The decrease in the number of trade premises licensed was 138 and this was due, chiefly, to the adoption of a more exacting standard for premises of this type and the consequent cancellation, after due warning, of a number of licences, particularly Common Lodging Houses, Eating Shops and Pig Styres.

## COMMON LODGING HOUSES.

717 common lodging houses were licensed during the year as against 805 in 1933 and the fees collected amounted to \$1,422.10 as against \$1,556.60, a decrease of 88 houses and \$134.50 in fees.

Several night visits to common lodging houses were made and the results show how necessary these visits were. There was no discrimination to the houses visited the method being to inspect all in a certain predetermined area. The visits were made in the early hours of the morning between 1 and 3 o'clock. 128 houses were visited and 90 of these were found to be overcrowded to an extent of more than 10 % in excess of the number for which they were licensed. One house actually showed an excess of 227 % and quite a number were between 100 and 150 %. The keepers of all the houses showing an excess of more than 10 per cent were prosecuted and fines totalling \$904.00 were imposed.

**MILK.**

198 milk sellers were registered in 1934 as against 190 in 1933, an increase of 8.

5,878 lactometer tests were made during the year, 14 samples being sent to the Analyst of which 5 were returned as being below standard.

22 summonses were issued, 4 for selling adulterated milk and 18 for offences against the bye-laws and regulations.

61 were brought forward from 1933

---

Total 83

---

23 convictions were obtained

60 were carried forward to 1935

---

Total 83

---

The 60 cases carried forward to 1933 consist of an accumulation of summonses, over a number of years, against milk sellers who cannot be traced. They are chiefly summonses in respect of adulterated milk where the analysis has shown heavy adulteration and the offenders have thought it expedient to transfer their activities to some other district where we cannot trace them rather than face the consequent heavy fine. These summonses are carried forward from year to year because from past experience we find that some of the offenders return to Penang, even after many years.

Fines amounting to \$225 were imposed as against \$213 in 1933, an increase of \$12.

**VACCINATION.**

Our vaccinators made 3,178 primary and 465 secondary vaccinations. 1,570 tubes of lymph were used at a cost of \$392.50.

Private practitioners and public vaccinators made 951 primary vaccinations.

The Government vaccinator made 3,304 secondary vaccinations within Municipal limits.

**RATS.**

The gang of rat-catchers caught and destroyed 6,951 rats during the year by means of smoking, trapping and the use of poison.

**ANTI-MOSQUITO WORK.**

Four anti-mosquito gangs worked during the year, cutting down vegetation, digging, levelling and clearing ditches in "reserved roads" within Municipal limits. They also carried out works at the request, and at the expense, of owners. All streams were cleared when necessary and, as in previous years, particular attention was paid to the stream at the Chetty Temple during the Thaipusum Festival.

The tree filling gang which had done valuable work ceased on 31st March there being no longer sufficient work to justify their continuance.

The oiling gangs under supervisors regularly oiled all ditches, swamps and streams within Municipal limits and the Race Course, Kelawei Road, Bagan Jermal, Mount Erskine,



Western Road, Waterfall Road and Scotland Road including the foothills to Kampong Bahru, Batu Gantong and foothills, Caunter Hall, Perak Road, East and West Jelutong and Jelutong Village, Bukit Dunbar, Perak Lane, Burmah, Anson, Larut, Gottlieb, Sungei Pinang, River, Patani, Jelutong and Batu Lanchang Roads.

92,800 gallons of anti-malarial oil were used, the cost being \$15,196.00.

At the request of certain owners work was done on private property and the income from this source was \$1,141.77.

#### PERMANENT ANTI-MALARIAL WORKS.

The sub-soil drainage on land at Batu Gantong was completed on 19th January. In September, as a result of exceptionally heavy rains some repairs had to be carried out as an urgent measure.

On 20th January the work of channelling a ditch on the T.S.N. Estate at Brook Road was commenced. The work proceeded until 19th May when the inverts and concrete side walls had been laid. Heavy rains then forced a temporary abandonment of the work and it was not until the end of the year that the amount of water flowing in the drain was such that work could be recommenced.

#### STAFF.

The following resigned their appointments during the year:—

Mr. H. L. McCulloch, Sanitary Inspector. From 31.5.34 on retirement.

Mr. Low Cheng Cheow, Sanitary Sub-Inspector. From 31.12.34.

The following were dismissed from the service during the year:—

Mr. P. Gautier, Sanitary Sub-Inspector. From 13.9.34.

Mr. Ahmed bin Haji Ismail, Supervisor. From 30.6.34.

The following were confirmed in their appointments during the year:—

Mr. C. B. de Souza, Sanitary Sub-Inspector. From 1.1.34.

Mr. A. de Mello, Supervisor. From 1.7.34.

Mr. Ahmed bin Md. Shah, Assistant Supervisor. From 1.4.34.

The following promotions were made during the year:—

Mr. E. V. Lessler, Sanitary Sub-Inspector to Sanitary Inspector. From 1.6.34.

Mr. Md. Shah bin Sutan Daik, Process Server to Assistant Supervisor. From 1.4.34.

Mr. Sheriff bin Salleh, Process Server, to Assistant Supervisor. From 1.4.34.

The following appointments were made during the year:—

Mr. M. B. Pestana, Sanitary Sub-Inspector. From 1.7.34.

Mr. Kassim bin Ibrahim, Assistant Supervisor. From 1.4.34.

Mr. F. L. Alphonse, Assistant Supervisor. From 1.4.34.

Mr. Ali bin Ismail, Assistant Supervisor. From 1.4.34.

In this, my first full year as Chief Sanitary Inspector, it is my pleasure to acknowledge the loyal co-operation of the staff and to record the very satisfactory work carried out by them during the year

I have the honour to be,

Sir,

Your obedient servant,

(Sd.) J. E. MILLER,

Chief Sanitary Inspector



Prosecutions	Brought forward from 1933	Issued in 1934	Cases in Court	Convictions	Withdrawn	Discharged	Abatement of Nuisance Order	Closing Order	Ejectment Order	Prohibition Order	Demolition Order	Total Orders obtained	Fines		Costs	
													\$	cts.	\$	cts.
Nuisance Notice ..	3	30	30	28	2	—	19	1	—	2		22	20	00	12	00
Abatement of Nuisance Order ...	4	10	9	9	—	—	—	8	—	—	1	9	—	—	1	00
Latrines ...	—	5	5	5	—	—	—	—	—	—	—	—	7	50	2	50
Drain ...	—	2	2	2	—	—	—	—	—	—	—	—	10	00	1	00
Partitions ...	1	2	1	—	1	—	—	—	—	—	—	—	—	—	—	—
Trades ...	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	50
Open Space ...	—	3	2	2	—	—	—	—	—	—	—	—	17	50	1	00
Common Lodging Houses ..	1	33	32	32	—	—	—	—	—	—	—	—	350	00	16	00
Breach of C.L.H. Bylaws ...	—	96	95	94	1	—	—	—	—	—	—	—	981	00	47	00
Breach of Bakery Bylaws ...	10	37	37	36	1	—	—	—	—	—	—	—	196	00	18	00
Breach of Milk Regulations ...	61	22	23	23	—	—	—	—	—	—	—	—	225	00	31	50
Failing to report birth ...	2	13	12	12	—	—	—	—	—	—	—	—	12	50	6	00
Filthy Premises ...	—	2	2	2	—	—	—	—	—	—	—	—	10	00	1	00
Mosquitoes ...	10	6	14	12	2	—	—	—	—	—	—	—	26	00	6	00
Closing Order ...	4	4	3	3	—	—	—	—	—	—	—	—	8	00	1	00
Breach of Conditions (Minor Offences) ...	—	3	3	3	—	—	—	—	—	—	—	—	45	00	1	50
Total ...	96	269	271	264	7	—	19	9	—	2	1	31	1909	00	146	50

Licences issued	1934			1933			Increase			Decrease.		
	No.	Fees.		No.	Fees.		No.	Fees.		No.	Fees	
		\$	cts.		\$	cts.		\$	cts.		\$	cts.
Coal Depot ...	3	36	00	3	36	00	—	—	—	—	—	—
Charcoal Depot ...	22	132	00	29	174	00	—	—	—	7	42	00
Wood Depot ...	53	318	00	58	348	00	—	—	—	5	30	00
Candle Factory ...	11	88	00	11	88	00	—	—	—	—	—	—
Braziers, Foundries and Smithies	39	78	00	44	88	00	—	—	—	5	10	00
Atap, Kajang and Straw ...	24	72	00	26	78	00	—	—	—	2	6	00
Cattleshed and Cowhouse ...	64	267	00	69	262	00	—	5	00	5	—	—
Pig Sties ...	501	1002	00	515	1030	00	—	—	—	14	28	00
Stables and Horses ...	1	1	00	1	1	00	—	—	—	—	—	—
Sheep and Goats ...	11	42	00	15	53	60	—	—	—	4	11	60
Storing and Curing Hides ...	7	84	00	6	72	00	1	12	00	—	—	—
Soap Factory ...	16	128	00	16	128	00	—	—	—	—	—	—
Fish Curing and Storing ...	29	348	00	31	372	00	—	—	—	2	24	00
Rags, Bones and Feathers ...	6	72	00	6	72	00	—	—	—	—	—	—
Dyeing House ...	4	40	00	4	40	00	—	—	—	—	—	—
Drying Cloth ...	1	5	00	1	5	00	—	—	—	—	—	—
Tanneries ...	10	240	00	11	264	00	—	—	—	1	24	00
Blachan Factory ...	2	24	00	2	24	00	—	—	—	—	—	—
Sugar Factory ...	6	36	00	5	30	00	1	6	00	—	—	—
Pottery Making ...	2	4	00	2	4	00	—	—	—	—	—	—
Market Gardens ...	90	—	—	86	—	—	4	—	—	—	—	—
Milksellers ...	198	198	00	190	190	00	8	8	00	—	—	—
Bakeshops ...	21	105	00	19	95	00	2	10	00	—	—	—
Cookshops ...	179	895	00	171	855	00	8	40	00	—	—	—
Eatingshops ...	774	3870	00	797	3985	00	—	—	—	23	115	00
Fresh Fish and Meat ...	33	165	00	41	205	00	—	—	—	8	40	00
Lodging Houses (Minor Offences Ordinance) ...	30	30	00	28	28	00	2	2	00	—	—	—
Common Lodging Houses ...	717	1422	10	805	1556	60	—	—	—	88	134	50
Total ...	2854	9702	10	2992	10084	20	26	83	00	164	465	10